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Memorandum **EDMC**

W1141-SLF-04-186

To: S. J. Trent A0-21 Date: June 3, 2004

From: S. L. Fitzgerald, Manager
WSCF Analytical Chemistry *SLF*

cc:	w/Attachments	w/o Attachments
	T. F. Dale S3-28	D. J. Hart S3-30
	H. K. Meznarich S3-30	M. A. Neely S3-30
	P. D. Mix S3-30	H. S. Rich S3-28
	J. E. Trechter S3-30	L. C. Swanson E6-35
		File/LB

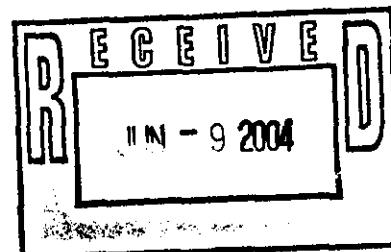
Subject: FINAL RESULTS FOR 216-Z-9/C3426 TRENCH CHARACTERIZATION BOREHOLE –
SAMPLE DELIVERY GROUP WSCF20040704 – SAF NUMBER F03-018

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEN-001,
October 31, 2002
(2) HNF-SD-CD-QAPP-017, Rev. 6, Waste Sampling & Characterization Facility Quality
Assurance Plan

This letter contains a narrative (Attachment 1) for sample delivery group WSCF20040704, the analytical results (Attachment 2), and the sample receipt information (Attachment 3).

SLF/grf

Attachments 3



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ATTACHMENT 1

NARRATIVE

Consisting of 4 pages
Not including cover page

0000002

Sample Delivery Group	WSCF20040704
Sample Matrix	Other/Solid
Sample Visual	N/A
SAF Number	F03-018
Data Deliverable	Summary Report

Introduction

One (1) sample (B17N60) from 216-Z-9/C3426-Interval 112-119.51 was received at the WSCF Laboratory on April 30, 2004. The sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program- Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Mercury and Uranium only. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 600/R-94-111 300. Analytical work was performed with no deviations to the approved method.

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA SW-846 9045C. Analytical work was performed with no deviations to the approved method.
- All RadChem analyses (AEA (Neptunium-237, Americium, Plutonium and Uranium Isotopic), GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See page 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – The hold time for this analysis was met. A Blank and Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-38 through 2-42 for QC details. Analytical Notes:

- An E qualifier was assigned to the Silver result because the Silver recovery for the Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were below established limits.
- The Matrix Spike and Matrix Spike Duplicate results for Bismuth were below established limits. The sample result was not flagged since the result was less than detectable. All other QC controls are within the established limits.
- The LCS recovery for Antimony was within the manufacturer acceptance limits, but below established laboratory control limits.
- Manganese recovery exceeded the Matrix Spike and Matrix Spike Duplicate established limits; an E qualifier (estimate) was assigned to the sample result.

Anions – The hold time(s) for this analysis was met. A beginning and ending Blank, Duplicate, Matrix Spike, Matrix Spike Duplicate and Laboratory Control Sample were analyzed with each delivery group per GRP Letter of Instruction. See pages 2-20 and 2-21 for QC details. Analytical Notes:

- The Nitrate over-ranged the calibration curve and was re-run with its associated quality controls.
- Phosphate Matrix Spike and Matrix Spike Duplicate were below established limits and the sample was flagged E (estimated).

All other quality controls are within the established limits.

Semi-VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-22 through 2-27 for QC details. All quality controls are within the established limits.

TPHD-WA - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note: The diesel Matrix Spike recovery was slightly low. The Matrix Spike Duplicate was within established limits, so the sample was not flagged. All other quality controls were within the established limits.

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-33 through 2-35 for QC details. All quality controls are within the established limits.

CN – The hold time(s) for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See page 2-17 for QC details. All quality controls are within the established limits.

Ammonium – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See page 2-37 for QC details. Analytical Notes: Sample result was given "E" data qualifier due to low spike recoveries and a slightly high (111%) ending calibration verification sample. The low spike recoveries were probably due to matrix effects, since similar results occurred when the customer sample and matrix spike sample was re-prepared and analyzed. All other quality controls are within the established limits.

Percent Solids – No hold time exists for this analysis. Analysis was performed to correct for percent moisture. Analytical Note: Organic Analyses; sample concentrations were corrected for moisture. Group related quality control samples are not performed on Percent Solids samples.

pH - The hold time(s) for this analysis was met (ASAP). Analytical Note: Group related quality control samples are not performed on pH samples.

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-18, 2-29 through 2-32 and 2-36 for QC details. Analytical Notes:

- Am-241 was identified as a non-requested analyte in both the sample and Duplicate control samples (see Tentatively Identified Peak Report).
- Pu-239/240 Duplicate exceeded established limits due to a non-homogeneous soil matrix.

- Gross Alpha/Beta Duplicate exceeded established limits due to a non-homogeneous soil matrix.
- Np-237 sample results were flagged J (estimated) due to low Laboratory Control Sample recovery.

All other quality controls are within the established limits.

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	74.92
LCS		Am-243	72.08
B17N60	W040000464	Am-243	78.31
DUPLICATE	W040000464	Am-243	77.89
BLANK		Pu-242	75.56
LCS		Pu-242	82.02
B17N60	W040000464	Pu-242	87.61
DUPLICATE	W040000464	Pu-242	100.03

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.



Herlene S. Rich
WSCF Production Control

Abbreviations

Hg – mercury

IC – ion chromatography

ICP – inductively coupled plasma

ICP/AES – ICP/atomic emission spectroscopy

ICP/MS – ICP/mass spectrometry

Total U – total uranium

AT/TB – total alpha/total beta

AEA – Alpha Energy Analysis

WTPH-G – Total Hydrocarbons-Gasoline

Am – americium

Cm - curium

Pu – plutonium

Np – neptunium

GEA – gamma energy analysis

H3 – Tritium

Sr – Strontium 89, 90

WTPH-D – Total Hydrocarbons-Diesel

TSS – Total Suspended Solids

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ATTACHMENT 2

ANALYTICAL RESULTS

Consisting of 42 pages
Not including cover page

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WSCF ANALYTICAL RESULTS REPORT

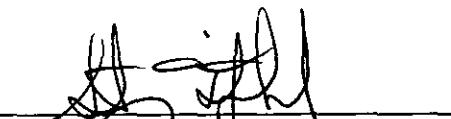
for

Groundwater Remediation Program

Richland, WA 99352

Attention: Steve Trent

Analytical:



Client Services:



All results are reported on an "as received" basis unless otherwise noted in the comment section.

Confidentiality Notice: The information contained in this report is privileged and confidential information intended only for the use of the addressee. If the reader of this report is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at (509) 373-7020.

Contract#: FH-EIS-2003-MEM-001

Report#: WSCF20040704

Report Date: 1-jun-2004

Report WGPP/ver. 1

Groundwater Remediation Program

Page 1

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent Group #: WSCF20040704
 Project: F03-018: F03-018

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive	
W040000464	B17N60	GRP	TRENT	TPHKEROSENE	Kerosene	SOIL NWTPH	U < 3.90e + 03	ug/kg	1.00	3.9e + 03	05/12/04	04/21/04	04/30/04

MDL=Minimum Detection Limit

E - Analyte is an estimate, has potentially larger errors

U - Analyzed for but not detected above limiting criteria.

RQ=Result Qualifier

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1

Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
 Project: F03-018: F03-018

Group #: WSCF20040704

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF	Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive	
W040000464	B17N60	GRP	TRENT	7440-70-2	Calcium	SOIL	LA-505-411	3.29e+04	mg/kg	1.00e+002	1.2e+02	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-411	11.8	mg/kg	1.00	0.063	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7439-93-2	Lithium	SOIL	LA-505-411	5.06	mg/kg	1.00	0.10	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7440-24-6	Strontium	SOIL	LA-505-411	78.2	mg/kg	1.00	0.10	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7440-38-2	Arsenic	SOIL	LA-505-411	3.49	mg/kg	1.00	1.2	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7440-41-7	Beryllium	SOIL	LA-505-411	0.460	mg/kg	1.00	5.0e-03	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7440-69-9	Bismuth	SOIL	LA-505-411 U	< 5.00	mg/kg	1.00	5.0	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7723-14-0	Phosphorus	SOIL	LA-505-411	1.47e+03	mg/kg	10.00	3.0	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7782-49-2	Selenium	SOIL	LA-505-411	1.99	mg/kg	1.00	1.0	05/25/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7439-97-6	Mercury	SOIL	LA-505-412 U	< 0.0100	mg/kg	10.00	0.010	05/10/04	04/21/04	04/30/04
W040000464	B17N60	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412	0.522	mg/kg	10.00	0.16	05/10/04	04/21/04	04/30/04

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* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. I

Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
 Project: F03-018: F03-018

Group #: WSCF20040704

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF		Unit	DF	MDL	Analyze Sample	Receive	
					Method	RQ						
W040000464	B17N60	GRP	TRENT	U-233/234	Uranium-233/234	SOIL	LA-508-471	0.520	pCi/g	1.00	0.026	05/13/04 04/21/04 04/30/04
W040000464	B17N60	GRP	TRENT	E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471	+-	0.19	pCi/g	1.00	0.0
W040000464	B17N60	GRP	TRENT	15117-96-1	Uranium-235	SOIL	LA-508-471	0.0740	pCi/g	1.00	0.029	05/13/04 04/21/04 04/30/04
W040000464	B17N60	GRP	TRENT	E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471	+-	0.059	pCi/g	1.00	0.0
W040000464	B17N60	GRP	TRENT	U-238	Uranium-238	SOIL	LA-508-471	0.490	pCi/g	1.00	0.072	05/13/04 04/21/04 04/30/04
W040000464	B17N60	GRP	TRENT	E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471	+-	0.19	pCi/g	1.00	0.10

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Groundwater Remediation Program

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WSCF

ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F03-018

Group #: WSCF20040704

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		W040000464 Sample and Dup Am-241 detected at 600 pCi/g. SVOA: Sample concentrations have been corrected for moisture den W040464/alpha/beta: The dup is flagged because the sample is not homogeneous. W040464/Pu239: The dup is flagged but the sample is below MDC TPH-D: Recovery for surrogate and diesel slightly low in the MS sample causing SPK-RPD to be out slightly high. cgc IC Ammonium: Spike recoveries low probably due to matrix effect. "E" qualifier due to slightly high (111%) ending calibration verification and low spike recoveries-wb ICP-AES: Silver recovery in LCS and matrix spikes was low and silver in sample results is therefore estimated ("E") Low spike recoveries for Bismuth but the LCS for Bismuth was acceptable and the sample result for Bismuth was less than than the method detection limit. Manganese spike recoveries were biased high and the sample result for Manganese is therefore estimated ("E"). ldl/wwwb

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

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100019

Attention: Steve Trent
Project Number F03-018 :F03-018

Group #: WSCF20040704

Sample #	Client ID			Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.62	pCi/g
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.97	pCi/g
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.97	pCi/g
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-214				1.2	pCi/g
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	AM-241 Count Error				14	%
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				26	%
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				26	%
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				28	%
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				36	%
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				36	%
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	AM-241				5.9e + 02	pCi/g
W040000464	B17N60	GRP	TRENT	Gamma Energy Analysis-grd H2O	K-40				6.6	pCi/g
W040000464	B17N60	GRP	TRENT	SW-846 8270B Semi-Vols	SMP 7.131 Unknown	Unknown	7.1312	J	1.4e + 03	ug/kg
W040000464	B17N60	GRP	TRENT	SW-846 8270B Semi-Vols	SMP 5.189 Unknown	Unknown	5.189716	J	1.8e + 02	ug/kg

RQ=Result Qualifier

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Groundwater Remediation Program

WGPPE v 0 Report #: 20040704

Report Date: 1-jun-2004

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METHOD REFERENCES REPORT

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The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-212-411	Determination of Soil pH Measurement EPA SW-846 9045C	SOIL AND WASTE pH
LA-503-401	LA-503-401: ANALYSIS OF CATIONS BY ION CHROMATOGRAPHY EPA-600/4-86-024 300.7	Dissolved Sodium, Ammonium, Potassium, and Calcium in Wet Deposition by Chemical
LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE EPA SW-846 6010B	INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY EPA-600/R-94-111 200.8	DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS
LA-508-415	Operation of Protean Alpha/Beta Counters None	No reference to any industry method.
LA-508-471	LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP None	No reference to any industry method.
LA-508-481	LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE None	No reference to any industry method.
LA-519-412	LA-519-412: TOTAL RESIDUE/% SOLIDS DRIED AT 103 - 105 C EPA-600/4-79-020 160.3 Standard Methods 2540B	RESIDUE, TOTAL Total Solids Dried at 103-105 C

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at
 \\ap006\\aspdocs\\WSCF\\Sample Mgmt\\ProcedureMethodCrossReference.pdf. This document includes on-line
 links to full-text versions of the procedures and methods, where available.

Report Date: 1-jun-2004

Report #: WSCF20040704

Report WGPPM/O

Page 1

WSCF

METHOD REFERENCES REPORT

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LA-523-455	LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846	
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS	
EPA SW-846 8260B	VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)	
LA-523-456	LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C	
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS	
EPA SW-846 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)	
LA-533-410	LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY	
EPA-600/R-94-111 300	DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY	
LA-695-402	LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC	
EPA-600/4-79-020 335.2	Cyanide, Total	
NWTPH	NWTPH-Diesel and/or Gasoline	
WDOE NWTPH-Dx/Gx	Total Petroleum Hydrocarbons - Diesel/Gasoline	

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at \\ap006\aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf. This document includes on-line links to full-text versions of the procedures and methods, where available.

Report Date: 1-jun-2004

Report #: WSCF20040704

Report WGPPM/O

w13qlog v1 01-jun-2004 13:19:30

W13q Worklist/Batch/QC Report for Group# WSCF20040704

WL#	S#	Batch	QC#	Tray	Type	Sample#	Test
				SAMPLE		W040000464	Percent Solids
				SAMPLE		W040000464	pH Soil and Waste Measurement
			25617	BLANK			Cyanide by Midi/Spectrophotom
			25617	BLNK-PREP			Cyanide by Midi/Spectrophotom
			25617	LCS			Cyanide by Midi/Spectrophotom
			25617	LCS-2			Cyanide by Midi/Spectrophotom
			25617	MS	W040000464		Cyanide by Midi/Spectrophotom
			25617	MSD	W040000464		Cyanide by Midi/Spectrophotom
			25617	SAMPLE	W040000464		Cyanide by Midi/Spectrophotom
			25617	SPK-RPD	W040000464		Cyanide by Midi/Spectrophotom
22113	1	22487	25641	BLANK			Gamma Energy Analysis-grd H2O
22113	2	22487	25641	LCS			Gamma Energy Analysis-grd H2O
22113	3	22487	25641	DUP	W040000464		Gamma Energy Analysis-grd H2O
22113	4	22487	25641	SAMPLE	W040000464		Gamma Energy Analysis-grd H2O
22165	1	22539	25660	BLANK			ICP-2008 MS All possible metal
22165	2	22539	25660	LCS			ICP-2008 MS All possible metal
22165	4	22539	25660	MS	W040000464		ICP-2008 MS All possible metal
22165	5	22539	25660	MSD	W040000464		ICP-2008 MS All possible metal
22165	3	22539	25660	SAMPLE	W040000464		ICP-2008 MS All possible metal
22165	0	22539	25660	SPK-RPD	W040000464		ICP-2008 MS All possible metal
22189	2	22563	25678	BLANK			Anions by Ion Chromatography
22189	9	22563	25678	BLANK			Anions by Ion Chromatography
22189	3	22563	25678	LCS			Anions by Ion Chromatography
22189	5	22563	25678	DUP	W040000464		Anions by Ion Chromatography
22189	6	22563	25678	MS	W040000464		Anions by Ion Chromatography
22189	7	22563	25678	MSD	W040000464		Anions by Ion Chromatography
22189	4	22563	25678	SAMPLE	W040000464		Anions by Ion Chromatography
22202	2	22576	25691	BLANK			Anions by Ion Chromatography
22202	9	22576	25691	BLANK			Anions by Ion Chromatography
22202	3	22576	25691	LCS			Anions by Ion Chromatography
22202	5	22576	25691	DUP	W040000464		Anions by Ion Chromatography
22202	6	22576	25691	MS	W040000464		Anions by Ion Chromatography
22202	7	22576	25691	MSD	W040000464		Anions by Ion Chromatography
22189	4	22576	25691	SAMPLE	W040000464		Anions by Ion Chromatography
			25697	BLANK			SW-846 8270B Semi-Vols
			25697	LCS			SW-846 8270B Semi-Vols
			25697	SAMPLE	W040000464		SW-846 8270B Semi-Vols
			25697	SURR	W040000464		SW-846 8270B Semi-Vols
			25697	MS	W040000471		SW-846 8270B Semi-Vols
			25697	MSD	W040000471		SW-846 8270B Semi-Vols
			25697	SPK-RPD	W040000471		SW-846 8270B Semi-Vols
			25701	BLANK			WTPH-D TPH Diesel Range (Wa)
			25701	LCS			WTPH-D TPH Diesel Range (Wa)
			25701	SAMPLE	W040000464		WTPH-D TPH Diesel Range (Wa)
			25701	SURR	W040000464		WTPH-D TPH Diesel Range (Wa)
			25701	MS	W040000471		WTPH-D TPH Diesel Range (Wa)
			25701	MSD	W040000471		WTPH-D TPH Diesel Range (Wa)

0000022

		25701	SPK-RPD	W040000471	WTPH-D TPH Diesel Range (Wa)
22208	1	22582	25711	BLANK	Neptunium by AEA
22208	2	22582	25711	LCS	Neptunium by AEA
22208	3	22582	25711	DUP	Neptunium by AEA
22208	4	22582	25711	SAMPLE	Neptunium by AEA
22217	1	22591	25716	BLANK	Uranium Isotopics by AEA
22217	2	22591	25716	LCS	Uranium Isotopics by AEA
22217	3	22591	25716	DUP	Uranium Isotopics by AEA
22217	4	22591	25716	SAMPLE	Uranium Isotopics by AEA
22168	1	22542	25719	BLANK	Gross Alpha/Gross Beta (AB32)
22168	2	22542	25719	LCS	Gross Alpha/Gross Beta (AB32)
22168	3	22542	25719	DUP	Gross Alpha/Gross Beta (AB32)
22168	4	22542	25719	SAMPLE	Gross Alpha/Gross Beta (AB32)
22215	1	22589	25729	BLANK	Plutonium Isotopics by AEA
22215	2	22589	25729	LCS	Plutonium Isotopics by AEA
22215	3	22589	25729	DUP	Plutonium Isotopics by AEA
22215	4	22589	25729	SAMPLE	Plutonium Isotopics by AEA
		25789	BLANK		VOA Ground Water Protection
		25789	LCS		VOA Ground Water Protection
		25789	MS	W040000464	VOA Ground Water Protection
		25789	MSD	W040000464	VOA Ground Water Protection
		25789	SAMPLE	W040000464	VOA Ground Water Protection
		25789	SPK-RPD	W040000464	VOA Ground Water Protection
		25789	SURR	W040000464	VOA Ground Water Protection
22265	1	22642	25799	BLANK	Americium by AEA
22265	2	22642	25799	LCS	Americium by AEA
22265	3	22642	25799	DUP	Americium by AEA
22265	4	22642	25799	SAMPLE	Americium by AEA
22298	2	22674	25806	BLANK	Ammonia (N) by IC
22298	9	22674	25806	BLANK	Ammonia (N) by IC
22298	3	22674	25806	LCS	Ammonia (N) by IC
22298	5	22674	25806	DUP	Ammonia (N) by IC
22298	6	22674	25806	MS	Ammonia (N) by IC
22298	7	22674	25806	MSD	Ammonia (N) by IC
22298	4	22674	25806,	SAMPLE	Ammonia (N) by IC
22203	1	22577	25816	BLANK	ICP Metals Analysis, Grd H2O P
22203	2	22577	25816	LCS	ICP Metals Analysis, Grd H2O P
22203	4	22577	25816	MS	ICP Metals Analysis, Grd H2O P
22203	5	22577	25816	MSD	ICP Metals Analysis, Grd H2O P
22203	3	22577	25816	SAMPLE	ICP Metals Analysis, Grd H2O P
22203	0	22577	25816	SPK-RPD	ICP Metals Analysis, Grd H2O P

0000023

WSCF ANALYTICAL LABORATORY QC REPORT

2-17

SDG Number: WSCF20040704

Matrix: SOLID

Test: Cyanide by Midi/Spectrophotom

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

MS	Cyanide by Midi/Spectrophotom	57-12-5	100.4	100.400	% Recov	05/04/04	75.000	125.000	
MSD	Cyanide by Midi/Spectrophotom	57-12-5	102.7	102.700	% Recov	05/04/04	75.000	125.000	
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	102.700	2.265	RPD	05/04/04	0.000	20.000	

BATCH QC

BLANK	Cyanide by Midi/Spectrophotom	57-12-5	<1	n/a	ug/L	05/04/04	-4.000	4.000	U
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	<1	n/a	ug/L	05/04/04	-4.000	4.000	U
LCS	Cyanide by Midi/Spectrophotom	57-12-5	97.6	97.600	% Recov	05/04/04	85.000	115.000	
LCS-2	Cyanide by Midi/Spectrophotom	57-12-5	n/a	n/a	% Recov	05/04/04	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

2 - 18
21
22
23

SDG Number: WSCF20040704

Matrix: SOLID

Test: Gamma Energy Analysis-grd H₂O

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Cobalt-60	10198-40-0	U-2.36e-2	n/a	RPD	05/04/04	0.000	20.000	
DUP	Cesium-134	13967-70-9	U-1.28e-2	n/a	RPD	05/04/04	0.000	20.000	
DUP	Cesium-137	10045-97-3	U-3.65e-2	n/a	RPD	05/04/04	0.000	20.000	
DUP	Europium-152	14683-23-9	U5.15e-03	n/a	RPD	05/04/04	0.000	20.000	
DUP	Europium-154	15585-10-1	U-1.22e-1	n/a	RPD	05/04/04	0.000	20.000	
DUP	Europium-155	14391-16-3	U-2.87e-2	n/a	RPD	05/04/04	0.000	20.000	
DUP	Antimony-125	14234-35-6	U7.47e-02	n/a	RPD	05/04/04	0.000	20.000	

BATCH QC

BLANK	Cobalt-60	10198-40-0	U2.65e-3	n/a	pCi/g	05/04/04	-10000.000	1000.000	
BLANK	Cesium-134	13967-70-9	U4.24e-3	n/a	pCi/g	05/04/04	-10000.000	1000.000	
BLANK	Cesium-137	10045-97-3	U4.03e-2	n/a	pCi/g	05/04/04	-10000.000	1000.000	
BLANK	Europium-152	14683-23-9	U2.00e-2	n/a	pCi/g	05/04/04	-10000.000	1000.000	
BLANK	Europium-154	15585-10-1	U1.45e-2	n/a	pCi/g	05/04/04	-10000.000	1000.000	
BLANK	Europium-155	14391-16-3	U9.33e-2	n/a	pCi/g	05/04/04	-10000.000	1000.000	
BLANK	Antimony-125	14234-35-6	U-4.2e-3	n/a	pCi/g	05/04/04	-10000.000	1000.000	
LCS	Cobalt-60	10198-40-0	4.28e +03	102.148	% Recov	05/05/04	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.75e +03	104.749	% Recov	05/05/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

Matrix: SOLID

Test: ICP-2008 MS All possible metal

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

2004-04-21

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

MS	Mercury	7439-97-6	20.2	101.000	% Recov	05/10/04	70.000	130.000	
MS	Uranium	7440-61-1	391.2781	97.820	% Recov	05/10/04	70.000	130.000	
MSD	Mercury	7439-97-6	21.25	106.250	% Recov	05/10/04	70.000	130.000	
MSD	Uranium	7440-61-1	408.3781	102.095	% Recov	05/10/04	70.000	130.000	
SPK-RPD	Mercury	7439-97-6	106.250	5.066	RPD	05/10/04	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	102.095	4.277	RPD	05/10/04	0.000	20.000	

BATCH QC

BLANK	Mercury	7439-97-6	<1e-3	n/a	ug/L	05/10/04	-0.220	0.220	U
BLANK	Uranium	7440-61-1	<1.6e-2	n/a	ug/L	05/10/04	-0.220	0.220	U
LCS	Mercury	7439-97-6	10.31	109.564	% Recov	05/10/04	75.000	114.000	
LCS	Uranium	7440-61-1	406.8	101.700	% Recov	05/10/04	89.000	107.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20040704

SAF Number: F03-018

Matrix: SOLID

Sample Date: 04/21/04

Test: Anions by Ion Chromatography

Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Chloride	16887-00-6	1.29e +01	0.772	RPD	05/10/04	0.000	20.000	
DUP	Fluoride	16984-48-8	4.12e +00	10.204	RPD	05/10/04	0.000	20.000	
DUP	Nitrogen in Nitrite	NO2-N	< 9.50e-1	n/a	RPD	05/10/04	0.000	20.000	U
DUP	Phosphate	14265-44-2	< 2.70e0	n/a	RPD	05/10/04	0.000	20.000	U
DUP	Sulfate	14808-79-8	1.36e +01	18.474	RPD	05/10/04	0.000	20.000	
MS	Chloride	16887-00-6	9.78e-01	97.800	% Recov	05/10/04	75.000	125.000	
MS	Fluoride	16984-48-8	4.29e-01	86.842	% Recov	05/10/04	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	5.01e-01	100.200	% Recov	05/10/04	75.000	125.000	
MS	Phosphate	14265-44-2	5.26e-01	54.283	% Recov	05/10/04	75.000	125.000	*
MS	Sulfate	14808-79-8	1.84e +00	92.000	% Recov	05/10/04	75.000	125.000	
MSD	Chloride	16887-00-6	1.11e +00	111.000	% Recov	05/10/04	75.000	125.000	
MSD	Fluoride	16984-48-8	4.41e-01	89.271	% Recov	05/10/04	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.92e-01	98.400	% Recov	05/10/04	75.000	125.000	
MSD	Phosphate	14265-44-2	5.12e-01	52.838	% Recov	05/10/04	75.000	125.000	*
MSD	Sulfate	14808-79-8	1.93e +00	96.500	% Recov	05/10/04	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	< 5.20e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Chloride	16887-00-6	< 5.20e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	< 2.30e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	< 2.30e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	< 1.90e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	< 1.90e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	< 5.40e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	< 5.40e-2	n/a	mg/L	05/10/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	< 1.00e-1	n/a	mg/L	05/10/04	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

Matrix: SOLID

Test: Anions by Ion Chromatography

SAF Number: F03-018

Sample Date:

Receive Date:

0000002

2-21

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Sulfate	14808-79-8	< 1.00e-1	n/a	mg/L	05/10/04	0.000	300.000	U
LCS	Chloride	16887-00-6	2.02e +02	101.000	% Recov	05/10/04	80.000	120.000	
LCS	Fluoride	16984-48-8	8.92e +01	90.375	% Recov	05/10/04	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.52e +01	95.200	% Recov	05/10/04	80.000	120.000	
LCS	Phosphate	14265-44-2	1.77e +02	91.331	% Recov	05/10/04	80.000	120.000	
LCS	Sulfate	14808-79-8	3.81e +02	95.489	% Recov	05/10/04	80.000	120.000	

Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Nitrogen in Nitrate	NO3-N	3.29e +01	4.748	RPD	05/11/04	0.000	20.000	
MS	Nitrogen in Nitrate	NO3-N	4.32e-01	95.787	% Recov	05/11/04	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.48e-01	99.335	% Recov	05/11/04	75.000	125.000	

BATCH QC

BLANK	Nitrogen in Nitrate	NO3-N	<1.31e0	n/a	mg/L	05/11/04	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	05/11/04	0.000	300.000	U
LCS	Nitrogen in Nitrate	NO3-N	8.78e +01	97.447	% Recov	05/11/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704
 Matrix: SOLID
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
 Sample Date: 04/21/04
 Receive Date: 04/30/04

0006024

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464
 BATCH QC ASSOCIATED WITH SAMPLE

SURR	2-Fluorophenol	367-12-4	3269.7	93.400	% Recov	05/11/04	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	3219.5	92.000	% Recov	05/11/04	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	3375.7	96.500	% Recov	05/11/04	64.000	111.000	
SURR	Phenol-d5	4165-62-2	2826.3	80.800	% Recov	05/11/04	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	2796.0	79.900	% Recov	05/11/04	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	3690.5	105.000	% Recov	05/11/04	35.000	150.000	

Lab ID: W040000471
 BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	3249.9	82.700	% Recov	05/12/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	3421.2	87.100	% Recov	05/12/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2935.0	74.700	% Recov	05/12/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	3795.9	96.600	% Recov	05/12/04	42.000	105.000	
MS	Acenaphthene	83-32-9	3231.5	82.300	% Recov	05/12/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	4934.8	83.700	% Recov	05/12/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	5462.4	92.700	% Recov	05/12/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	3237.6	82.400	% Recov	05/12/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3332.0	84.800	% Recov	05/12/04	56.000	122.000	
MS	Phenol	108-95-2	5201.0	88.300	% Recov	05/12/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	3448.8	87.800	% Recov	05/12/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3827.0	64.900	% Recov	05/12/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	3940.1	66.900	% Recov	05/12/04	62.000	114.000	
MS	Phenol-d5	4165-62-2	3287.6	83.700	% Recov	05/12/04	54.000	120.000	
MS	Pyrene	129-00-0	3682.2	93.700	% Recov	05/12/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	2993.1	76.200	% Recov	05/12/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3812.8	97.100	% Recov	05/12/04	35.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704
 Matrix: SOLID
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
 Sample Date: 05/03/04
 Receive Date: 05/03/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	1,2,4-Trichlorobenzene	120-82-1	3078.6	78.000	% Recov	05/12/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	3156.3	80.000	% Recov	05/12/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	3120.8	79.100	% Recov	05/12/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	3443.8	87.300	% Recov	05/12/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	3323.0	84.200	% Recov	05/12/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	4782.5	81.000	% Recov	05/12/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	5863.0	99.000	% Recov	05/12/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	3154.2	79.900	% Recov	05/12/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	3387.0	85.800	% Recov	05/12/04	56.000	122.000	
MSD	Phenol	108-95-2	5046.1	85.200	% Recov	05/12/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	3250.1	82.300	% Recov	05/12/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	4102.7	69.300	% Recov	05/12/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	4036.9	68.200	% Recov	05/12/04	62.000	114.000	
MSD	Phenol-d5	4165-62-2	3321.7	84.200	% Recov	05/12/04	54.000	120.000	
MSD	Pyrene	129-00-0	3736.0	94.700	% Recov	05/12/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	3068.3	77.700	% Recov	05/12/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	3874.2	98.200	% Recov	05/12/04	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	78.000	5.849	RPD	05/11/04	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	80.000	8.498	RPD	05/11/04	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	79.100	5.722	RPD	05/11/04	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	87.300	10.114	RPD	05/11/04	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	84.200	2.282	RPD	05/11/04	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	81.000	3.279	RPD	05/11/04	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	99.000	6.573	RPD	05/11/04	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	79.900	3.081	RPD	05/11/04	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	85.800	1.172	RPD	05/11/04	0.000	20.000	
SPK-RPD	Phenol	108-95-2	85.200	3.573	RPD	05/11/04	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	82.300	6.467	RPD	05/11/04	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	69.300	6.557	RPD	05/11/04	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	68.200	1.925	RPD	05/11/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704
 Matrix: SOLID
 Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
 Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	4-Nitrophenol	100-02-7	3420.4	68.400	% Recov	05/11/04	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	3420.6	68.400	% Recov	05/11/04	62.000	114.000	
LCS	Phenol-d5	4165-62-2	2785.4	83.600	% Recov	05/11/04	59.000	116.000	
LCS	Pyrene	129-00-0	3137.7	94.100	% Recov	05/11/04	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	2708.5	81.300	% Recov	05/11/04	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	3399.8	102.000	% Recov	05/11/04	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

2 - 29

SDG Number: WSCF20040704
 Matrix: SOLID
 Test: Neptunium by AEA

SAF Number: F03-018
 Sample Date: 04/21/04
 Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040000464									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Neptunium-237	13994-20-2	2.6e-01	21.277	RPD	05/12/04	0.000	25.000	
BATCH QC									
BLANK	Neptunium-237	13994-20-2	7.8e-03	0.008	pCi/g	05/12/04	0.000	1000.000	
LCS	Neptunium-237	13994-20-2	9.279	49.095	% Recov	05/12/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704
 Matrix: SOLID
 Test: Uranium Isotopes by AEA

SAF Number: F03-018
 Sample Date: 04/21/04
 Receive Date: 04/30/04

100037

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QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Uranium-238	U-238	5.5e-01	11.538	RPD	05/13/04	0.000	20.000	
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BATCH QC

BLANK	Uranium-238	24678-82-8	1.5e-01	0.150	pCi/g	05/13/04	0.000	1000.000	
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LCS	Uranium-238	24678-82-8	4.0e +01	105.513	% Recov	05/13/04	75.000	125.000	
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WSCF ANALYTICAL LABORATORY QC REPORT

2 - 31

SDG Number: WSCF20040704

Matrix: SOLID

Test: Gross Alpha/Gross Beta (AB32)

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Gross alpha	12587-46-1	1.9e +03	30.303	RPD	05/14/04	0.000	20.000	*
DUP	Gross beta	12587-47-2	3.9e +02	36.364	RPD	05/14/04	0.000	20.000	*

BATCH QC

BLANK	Gross alpha	12587-46-1	7.3e-01	0.730	pCi/g	05/14/04	-10.000	10.000	
BLANK	Gross beta	12587-47-2	-4.5	-4.500	pCi/g	05/14/04	-10.000	10.000	
LCS	Gross alpha	12587-46-1	8.2	112.792	%rec	05/14/04	75.000	125.000	
LCS	Gross beta	12587-47-2	22.2	108.824	%rec	05/14/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20040704

Matrix: SOLID

Test: Plutonium Isotopes by AEA

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Pu-239/240 by AEA	PU-239/240	1.9e +02	37.500	RPD	05/13/04	0.000	20.000	.
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BATCH QC

BLANK	Pu-239/240 by AEA	PU-239/240	4.8e-01	0.480	pCi/g	05/13/04	0.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	1.2e +01	97.561	% Recov	05/13/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

Matrix: SOLID

Test: VOA Ground Water Protection

SAF Number: F03-018

Sample Date:

Receive Date:

20040704

2-35

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Hexane	110-54-3	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Toluene-d8	2037-26-5	108.40	108.000	% Recov	05/04/04	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	05/04/04			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	05/04/04			U
LCS	1,1-Dichloroethene	75-35-4	44.050	88.100	% Recov	05/04/04	70.000	130.000	
LCS	Benzene	71-43-2	51.790	104.000	% Recov	05/04/04	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	106.60	107.000	% Recov	05/04/04	71.000	125.000	
LCS	Chlorobenzene	108-90-7	52.220	104.000	% Recov	05/04/04	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	116.90	117.000	% Recov	05/04/04	80.000	134.000	
LCS	Toluene-d8	2037-26-5	107.00	107.000	% Recov	05/04/04	80.000	126.000	
LCS	Toluene	108-88-3	51.680	103.000	% Recov	05/04/04	70.000	130.000	
LCS	Trichloroethene	79-01-6	50.920	102.000	% Recov	05/04/04	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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0000043

SDG Number: WSCF20040704
 Matrix: SOLID
 Test: Americium by AEA

SAF Number: F03-018
 Sample Date: 04/21/04
 Receive Date: 04/30/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Americium-241	14596-10-2	1.0e +03	2.020	RPD	05/19/04	0.000	20.000
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BATCH QC

BLANK	Americium-241	14596-10-2	9.3e-01	0.930	pCi/g	05/19/04	-10.000	1000.000
LCS	Americium-241	14596-10-2	24.49	93.118	% Recov	05/24/04	75.000	125.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

Matrix: SOLID

Test: Ammonia (N) by IC

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

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QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W040000464

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Ammonia (N) by IC	7664-41-7	1.35e +01	3.636	RPD	05/14/04	0.000	20.000	
MS	Ammonia (N) by IC	7664-41-7	2.33e-01	56.553	% Recov	05/14/04	75.000	125.000	*
MSD	Ammonia (N) by IC	7664-41-7	2.32e-01	56.311	% Recov	05/14/04	75.000	125.000	*

BATCH QC

BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	05/14/04	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	05/14/04	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	8.87e +01	107.646	% Recov	05/14/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

Matrix: SOLID

Test: ICP Metals Analysis, Grd H2O P

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

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QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040000464									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Silver	7440-22-4	139.026	55.610	% Recov	05/25/04	75.000	125.000	
MS	Aluminum	7429-90-5	4400	n/a	% Recov	05/25/04	75.000	125.000	
MS	Arsenic	7440-38-2	247.51	99.004	% Recov	05/25/04	75.000	125.000	
MS	Barium	7440-39-3	244.8	97.920	% Recov	05/25/04	75.000	125.000	
MS	Beryllium	7440-41-7	254.54	101.816	% Recov	05/25/04	75.000	125.000	
MS	Bismuth	7440-69-9	142	56.800	% Recov	05/25/04	75.000	125.000	
MS	Calcium	7440-70-2	-8100	n/a	% Recov	05/25/04	75.000	125.000	
MS	Cadmium	7440-43-9	247	98.800	% Recov	05/25/04	75.000	125.000	
MS	Cobalt	7440-48-4	240.4	96.160	% Recov	05/25/04	75.000	125.000	
MS	Chromium	7440-47-3	237.3	94.920	% Recov	05/25/04	75.000	125.000	
MS	Copper	7440-50-8	256	102.400	% Recov	05/25/04	75.000	125.000	
MS	Iron	7439-89-6	-17400	n/a	% Recov	05/25/04	75.000	125.000	
MS	Potassium	7440-09-7	2904	116.160	% Recov	05/25/04	75.000	125.000	
MS	Lithium	7439-93-2	262.94	105.176	% Recov	05/25/04	70.000	130.000	
MS	Magnesium	7439-95-4	270	108.000	% Recov	05/25/04	75.000	125.000	
MS	Manganese	7439-96-5	325	130.000	% Recov	05/25/04	75.000	125.000	
MS	Sodium	7440-23-5	1400	n/a	% Recov	05/25/04	75.000	125.000	
MS	Nickel	7440-02-0	235.72	94.288	% Recov	05/25/04	75.000	125.000	
MS	Phosphorus	7723-14-0	520	n/a	% Recov	05/25/04	70.000	130.000	
MS	Lead	7439-92-1	239.2	95.680	% Recov	05/25/04	75.000	125.000	
MS	Antimony	7440-36-0	199.92	79.968	% Recov	05/25/04	75.000	125.000	
MS	Selenium	7782-49-2	262.01	104.804	% Recov	05/25/04	75.000	125.000	
MS	Strontium	7440-24-6	262.8	105.120	% Recov	05/25/04	70.000	130.000	
MS	Vanadium	7440-62-2	224	89.600	% Recov	05/25/04	75.000	125.000	
MSD	Zinc	7440-66-6	249.2	99.680	% Recov	05/25/04	75.000	125.000	
MSD	Silver	7440-22-4	139.026	55.610	% Recov	05/25/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

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SDG Number: WSCF20040704

Matrix: SOLID

Test: ICP Metals Analysis, Grd H2O P

SAF Number: F03-018

Sample Date: 04/21/04

Receive Date: 04/30/04

0000046

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Aluminum	7429-90-5	4000	n/a	% Recov	05/25/04	75.000	125.000	
MSD	Arsenic	7440-38-2	245.51	98.204	% Recov	05/25/04	75.000	125.000	
MSD	Barium	7440-39-3	243.8	97.520	% Recov	05/25/04	75.000	125.000	
MSD	Beryllium	7440-41-7	252.54	101.016	% Recov	05/25/04	75.000	125.000	
MSD	Bismuth	7440-69-9	140	56.000	% Recov	05/25/04	75.000	125.000	
MSD	Calcium	7440-70-2	-8900	n/a	% Recov	05/25/04	75.000	125.000	
MSD	Cadmium	7440-43-9	248	99.200	% Recov	05/25/04	75.000	125.000	
MSD	Cobalt	7440-48-4	241.4	96.560	% Recov	05/25/04	75.000	125.000	
MSD	Chromium	7440-47-3	240.3	96.120	% Recov	05/25/04	75.000	125.000	
MSD	Copper	7440-50-8	256	102.400	% Recov	05/25/04	75.000	125.000	
MSD	Iron	7439-89-6	-17000	n/a	% Recov	05/25/04	75.000	125.000	
MSD	Potassium	7440-09-7	2954	118.160	% Recov	05/25/04	75.000	125.000	
MSD	Lithium	7439-93-2	258.94	103.576	% Recov	05/25/04	75.000	125.000	
MSD	Magnesium	7439-95-4	400	n/a	% Recov	05/25/04	75.000	125.000	
MSD	Manganese	7439-96-5	316	126.400	% Recov	05/25/04	75.000	125.000	
MSD	Sodium	7440-23-5	1410	n/a	% Recov	05/25/04	75.000	125.000	
MSD	Nickel	7440-02-0	238.72	95.488	% Recov	05/25/04	75.000	125.000	
MSD	Phosphorus	7723-14-0	380	n/a	% Recov	05/25/04	75.000	125.000	
MSD	Lead	7439-92-1	242.2	96.880	% Recov	05/25/04	75.000	125.000	
MSD	Antimony	7440-36-0	200.92	80.368	% Recov	05/25/04	75.000	125.000	
MSD	Selenium	7782-49-2	262.01	104.804	% Recov	05/25/04	75.000	125.000	
MSD	Strontium	7440-24-6	259.8	103.920	% Recov	05/25/04	75.000	125.000	
MSD	Vanadium	7440-62-2	239	95.600	% Recov	05/25/04	75.000	125.000	
MSD	Zinc	7440-66-6	252.2	100.880	% Recov	05/25/04	75.000	125.000	
SPK-RPD	Silver	7440-22-4	55.610	0.000	RPD	05/25/04	0.000	20.000	
SPK-RPD	Aluminum	7429-90-5		n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	98.204	0.811	RPD	05/25/04	0.000	20.000	
SPK-RPD	Barium	7440-39-3	97.520	0.409	RPD	05/25/04	0.000	20.000	
SPK-RPD	Beryllium	7440-41-7	101.016	0.789	RPD	05/25/04	0.000	20.000	
SPK-RPD	Bismuth	7440-69-9	56.000	1.418	RPD	05/25/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

SAF Number: F03-018

Matrix: SOLID

Sample Date: 04/21/04

Test: ICP Metals Analysis, Grd H2O P

Receive Date: 04/30/04

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QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Calcium	7440-70-2		n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	99.200	0.404	RPD	05/25/04	0.000	20.000	
SPK-RPD	Cobalt	7440-48-4	96.560	0.415	RPD	05/25/04	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	96.120	1.256	RPD	05/25/04	0.000	20.000	
SPK-RPD	Copper	7440-50-8	102.400	0.000	RPD	05/25/04	0.000	20.000	
SPK-RPD	Iron	7439-89-6		n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Potassium	7440-09-7	118.160	1.707	RPD	05/25/04	0.000	20.000	
SPK-RPD	Lithium	7439-93-2	103.576	1.533	RPD	05/25/04	0.000	20.000	
SPK-RPD	Magnesium	7439-95-4		n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Manganese	7439-96-5	126.400	n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Sodium	7440-23-5		n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	95.488	1.265	RPD	05/25/04	0.000	20.000	
SPK-RPD	Phosphorus	7723-14-0		n/a	RPD	05/25/04	0.000	20.000	
SPK-RPD	Lead	7439-92-1	96.880	1.246	RPD	05/25/04	0.000	20.000	
SPK-RPD	Antimony	7440-36-0	80.368	0.499	RPD	05/25/04	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	104.804	0.000	RPD	05/25/04	0.000	20.000	
SPK-RPD	Strontium	7440-24-6	103.920	1.148	RPD	05/25/04	0.000	20.000	
SPK-RPD	Vanadium	7440-62-2	95.600	6.479	RPD	05/25/04	0.000	20.000	
SPK-RPD	Zinc	7440-66-6	100.880	1.197	RPD	05/25/04	0.000	20.000	

BATCH QC

BLANK	Silver	7440-22-4	<0.12	n/a	ug/g	05/25/04	-1.000	0.032	U
BLANK	Aluminum	7429-90-5	<2.5	n/a	ug/g	05/25/04	-1.000	63.000	U
BLANK	Arsenic	7440-38-2	<1.2	n/a	ug/g	05/25/04	-1.000	0.067	U
BLANK	Barium	7440-39-3	<1.3e-2	n/a	ug/g	05/25/04	-1.000	0.014	U
BLANK	Beryllium	7440-41-7	<5e-3	n/a	ug/g	05/25/04	-1.000	0.009	U
BLANK	Bismuth	7440-69-9	<5	n/a	ug/g	05/25/04	-1.000	0.068	U
BLANK	Calcium	7440-70-2	<1.2	n/a	ug/g	05/25/04	-38.000	38.000	U
BLANK	Cadmium	7440-43-9	<7.5e-2	n/a	ug/g	05/25/04	-1.000	0.009	U
BLANK	Cobalt	7440-48-4	<9.2e-2	n/a	ug/g	05/25/04	-4.000	4.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20040704

Matrix: SOLID

Test: ICP Metals Analysis, Grd H2O P

SAF Number: F03-018

Sample Date:

Receive Date:

00000451

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QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Magnesium	7439-95-4	2480	110.271	% Recov	05/25/04	80.000	120.000	
LCS	Manganese	7439-96-5	727	101.821	% Recov	05/25/04	80.000	120.000	
LCS	Sodium	7440-23-5	626	101.294	% Recov	05/25/04	80.000	120.000	
LCS	Nickel	7440-02-0	352	105.706	% Recov	05/25/04	80.000	120.000	
LCS	Phosphorus	7723-14-0	415	n/a	% Recov	05/25/04	80.000	120.000	
LCS	Lead	7439-92-1	366	106.706	% Recov	05/25/04	80.000	120.000	
LCS	Antimony	7440-36-0	99.4	72.029	% Recov	05/25/04	80.000	120.000	
LCS	Selenium	7782-49-2	407	112.121	% Recov	05/25/04	80.000	120.000	
LCS	Strontium	7440-24-6	359	108.133	% Recov	05/25/04	80.000	120.000	
LCS	Vanadium	7440-62-2	420	101.695	% Recov	05/25/04	80.000	120.000	
LCS	Zinc	7440-66-6	559	108.755	% Recov	05/25/04	80.000	120.000	